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09/689,289	10/11/2000	J. Scott Carr	60307	1154
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DIGIMARC CORPORATION 9405 SW GEMINI DRIVE BEAVERTON, OR 97008			BAYAT, BRADLEY B	
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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/689,289

Filing Date: October 11, 2000

Appellant(s): CARR ET AL.

**MAILED**

JUL 17 2006

**GROUP 3600**

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William Y. Conwell  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed April 27, 2006 appealing from the Office action mailed February 9, 2005.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

No amendment after final has been filed.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6,701,304 B2	LEON	03-2004
6,064,764	BHASKARAN et al.	05-2000

Yeung, M.M. et al., Digital Watermarks: Shedding Light on the Invisible, Nov/Dec 1998, Intel Corporation, vol. 18, issue 6, pp. 32-41.

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

*Claims 1-21 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.*

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The basis of this rejection is set forth in a two-prong test of:

- (1) whether the invention is within the technological arts; and*
- (2) whether the invention produces a useful, concrete, and tangible result.*

Mere intended or nominal use of a component, albeit within the technological arts, does not confer statutory subject matter to an otherwise abstract idea if the component does not apply, involve, use, or advance the underlying process. Furthermore, a mere implication of employing a machine or article of manufacture to perform some or all of the recited steps does not confer statutory subject matter to an otherwise abstract idea unless there is positive recitation in the claim as a whole to breathe life and meaning into the preamble.

In the present case, the applicant is merely claiming an envelope (claim 1) and a substrate (claim 14) with some data encoded. Applicant's claims are not tied to a technological art,

environment, or machine and therefore are non-statutory. *MPEP 2106 IV 2(b)*. Looking at the claim as a whole, nothing in the body of the claims recite any structure or functionality to suggest that applicant's claimed invention is within the required statutory subject matter and in the technological arts. *In re Musgrave*, 167 USPQ 280 (CCPA 1970) and *In re Johnston*, 183 USPQ 172 (CCPA 1974).

Additionally, for a claimed invention to be statutory, the claimed invention must produce a useful, concrete, and tangible result. Although the recited process may produce a useful, concrete, and tangible result, since the claimed invention, as a whole, is not within the technological arts as explained above, claims 1 and 14 are deemed to be directed to non-statutory subject matter and therefore claims 1-21 are rejected under 35 U.S.C. 101.

*Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leon, U.S. Patent 6,701,304 B2 in view of Bhaskaran et al. (hereinafter Bhaskaran), U.S. Patent 6,064,764 and in further view of Yeung et al. (hereinafter Yeung), Digital Watermarks: Shedding Light on the Invisible.*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

As per claim 1, Leon discloses an original envelope having encoded thereon a digital watermark representing plural bits of digital data (column 2, lines 10-18; column 2, lines 20-46; columns 9-10). Although Leon discloses the use of watermarks in a franking method and

apparatus, he does not explicitly disclose the use of a specific type of watermark known as a fragile digital watermark. Bhaskaran, however, teaches the use of a fragile digital watermark for detecting tampering with the original image (columns 1-2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize an additional variation of a watermark technique as taught by Bhaskaran to detect any kind of tampering or fraudulent production of an original mark or label as disclosed in Leon, to improve detection of unauthorized copies and reliably test image or postage authentication.

As per claim 2, Leon further discloses the envelope of claim 1 in which the watermark is formed with ink (column 2, lines 20-46).

As per claim 3, Leon further discloses the envelope of claim 1 in which the watermark is formed by texturing of the original envelope medium (column 2, lines 20-46).

As per claim 4, Leon discloses an original envelope having encoded thereon a digital watermark representing plural bits of digital data (column 2, lines 10-18; column 2, lines 20-46; columns 9-10). Although Leon discloses the use of watermarks in a franking method and apparatus, he does not explicitly disclose the use of a specific type of watermark known as a fragile digital watermark. Yeung, however, teaches the use of a fragile digital watermark for detection of tampering or whether a document or image is the original one (see entire article). Yeung further teaches that additional watermarks can be used on media for other functions, i.e., robust watermarks that can withstands at least certain photocopying operations yet for example identify the author of a work. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize additional watermarks besides a fragile watermark

for to perform different functions as in origination information that a fragile watermark cannot perform.

As per claim 5, Leon discloses an original envelope having encoded thereon a digital watermark representing plural bits of digital data (column 2, lines 10-18; column 2, lines 20-46; columns 9-10). Although Leon discloses the use of watermarks in a franking method and apparatus, he does not explicitly disclose the use of a specific type of watermark known as a fragile digital watermark. Yeung, however, teaches the use of a fragile digital watermark for detection of tampering or whether a document or image is the original one (see entire article). Yeung further teaches that location at which an image is captured can be embedded into the image using an invisible watermarking technique to embed global positioning system (GPS) information, wherein queries of image archives can be searched (page 39). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize such watermarking technique to encode data that would directly link to the corresponding site without the need to query a database or archive.

As per claim 6, Leon discloses an original envelope having encoded thereon a digital watermark representing plural bits of digital data (column 2, lines 10-18; column 2, lines 20-46; columns 9-10). Although Leon discloses the use of watermarks in a franking method and apparatus, he does not explicitly disclose the use of a specific type of watermark known as a fragile digital watermark. Yeung, however, teaches the use of a fragile digital watermark for detection of tampering or whether a document or image is the original one (see entire article). Yeung further teaches that digital watermarks can encode data representing a device or user that produced the document (pages 33, 39). Therefore it would have been obvious for one of

ordinary skill at the time of the invention to utilize a secondary watermark indicating the device or originator of the indicia or envelope for further prevention of fraud to facilitate accurate authentication. [Also see Bhaskaran for further support in columns 7-8.]

As per claim 7, Leon discloses an original envelope having encoded thereon a digital watermark representing plural bits of digital data (column 2, lines 10-18; column 2, lines 20-46; columns 9-10). Although Leon discloses the use of watermarks in a franking method and apparatus, he does not explicitly disclose the use of a specific type of watermark known as a fragile digital watermark. Yeung, however, teaches the use of a fragile digital watermark for detection of tampering or whether a document or image is the original one (see entire article). Yeung further teaches that digital watermarks can encode data indicating to compliant equipment an image should not be reproduced or copied. (page 34). Therefore it would have been obvious for one of ordinary skill at the time of the invention to utilize a secondary watermark indicating to the compliant device not to copy or reproduce an image as a further measure for prevention of fraud.

As per claim 8, Leon discloses the envelope of claim 4 in which the second digital watermark is printed on the envelope at the same time as a franking mark (columns 6-7).

As per claim 9, Leon discloses the envelope of claim 8 in which the second digital watermark is printed on the envelope by the same printing assembly used to print said franking mark (columns 8-9).

As per claim 10, Leon discloses the envelope of claim 4 in which at least one of said digital watermarks occupies a region that is also occupied by a franking mark printed on said envelope (figures 4 and 5 and associated text).

As per claim 11, Leon discloses the envelope of claim 4 in which the second watermark is formed on a second side of the envelope, opposite a side on which the first watermark is formed (column 6).

As per claim 12, Leon discloses the envelope of claim 1 in which said digital watermark is printed on the envelope at the same time as a franking mark (figures 4, 5 and associated text).

As per claim 13, Leon discloses the envelope of claim 1 in which said digital watermark is printed on the envelope by the same printing assembly used to print said franking mark (column 6, lines 27-64; column 7, line 50-column 8, line 50).

Claims 14-21 are directed to a substrate of the above claims and are rejected as above.

#### **(10) Response to Argument**

##### **1. § 101**

As per independent claims 1 and 14, Appellant contends the claims are statutory under § 101 because the claimed “mediums that are encoded with plural bits of digital data allows a functional interrelationship to be established with a corresponding computing process (appellant’s brief p. 6).” In particular, appellant argues, “the encoded information permits a photocopy of the envelope (or substrate) to be distinguished from the original.” *Id.* The examiner respectfully submits that Appellant’s reasoning and conclusion are flawed.

Appellant’s claims are directed to printed matter encoded with a data structure. In particular, the claims are directed to an envelope or document substrate having encoded thereon a digital watermark. Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer. See, e.g., *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760

(claim to a data structure *per se* held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized. In this case, the fragile digital watermark is not structurally and functionally interrelated to the printed matter and therefore non-statutory.<sup>1</sup> Appellant's claims fail to define any structural and functional interrelationship between the printed matter and the fragile digital watermark that permit the functionality to be realized.

As per claims 3, 4 and 7, appellant argues that adding texture to the envelope to form the watermark, adding a second watermark or a watermark serving to signal a compliant device add functional limitations resulting in statutory subject matter (appellant's brief pp. 6-7). Although such limitations may impart a secondary relationship with a device upon later use, the structural and functional interrelationship between the printed matter nevertheless is lacking as per the language of the claims.

## 2. § 103

As per claim 1, Appellant argues that there is no motivation to combine the references because Leon already provides for numerous fraud detection and prevention techniques and therefore erroneously concludes there would be no reason to include an additional functionality such as a fragile digital watermarking technique as taught by Bhaskaran (appellant's brief pp. 11-12). Applicant erroneously concludes, "hindsight has tainted the analysis." *Id.*

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<sup>1</sup> Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim).

Similar to Appellant's objective, Leon aims to deter fraudulent *reproduction* of postage labels, facilitate authentication of legitimate labels, and improve detection of unauthorized labels (Leon, column 2, lines 15-18, emphasis added). As acknowledged by Appellant, Leon discloses numerous data fields (both human-readable and machine-readable) encoded onto labels or mail pieces such as "fluorescent strips, watermarks, micro printing, imprints using special ink and/or taggants, and other features (Leon, column 2, lines 20-45)." In fact, Leon discloses that labels "can be preprinted with any combination of the following features: identifiers, fluorescent markings, micro printing, and others. Generally, these features are designed to be difficult to generate using standard printers (e.g., laser, dot matrix, ink jet, and others) and also difficult to reproduce using conventional techniques (e.g., xerographic reproduction)." *Id. at column 8, lines 28-34.*

Thus, Leon's numerous modalities including the use of watermarks were not presented as limiting, but rather taught the use of various combinations of techniques to achieve the objective; especially steganographic features aimed at detecting photocopied reproductions. The fact that applicant has enumerated another type of watermarking which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

As per claim 2, appellant's contention that the reference does not disclose forming watermarks using ink (appellant's brief p. 12), in column 2, lines 25-45 Leon provides:

*The indicia can, for example, be printed on preprinted labels or directly onto mail pieces, be formatted using a modular design, include various data fields, be printed with different types of ink that may include taggants, be*

**encoded or signed using encryption keys, and include micro printing and identifiers.** The contents of the indicia can include human-readable and machine-readable data elements. Human-readable information includes texts and graphics (e.g., date, address, postage amount, and so on) that can be interpreted by an operator without the use of special translation equipment. Machine-readable information includes graphical representations and encoded texts (e.g., bar codes, FIM marks, data matrix, encoded texts, specially formatted texts, unintelligible texts, and others) that are not readily interpreted by the operator. The postage labels can also include identifier information that exhibits special characteristics and that can be used for authenticating the indicia. **The identifiers include, for example, fluorescent strips, marks such as watermarks, micro printing, imprints using special ink and/or taggants, and other features, as described below** (emphasis added).

Therefore, as provided from the disclosure of Leon above, appellant's arguments are unfounded.

As per claim 3, Appellant argues that the reference fails to disclose a texturing technique (appellant's brief p. 13). The specification provides "texturing can be applied in various ways. One is by a mechanism integrated with the printer, e.g., one that impresses the medium with a pinch roller or other pressure-applying means. Another is during fabrication of the paper, e.g., by texturing dewatering elements in the paper making machinery to impress a desired pattern on the medium (specification p. 7, lines 11-20).

Leon discloses that "identifiers include, for example, fluorescent strips, marks such as watermarks, micro printing, imprints using special ink and/or taggants, and other features (column 2, lines 42-45, emphasis added)." An imprint is defined as producing a mark or pattern on a surface by pressure.<sup>2</sup> Appellant's argument is without merit.

As per claim 4, Appellant's argument that Yeung does not "mention paper media, such as envelopes or printable substrates" is without merit (appellant's brief p. 14). Leon embedded various identifiers and digital objects (i.e., watermarks) into printed postage labels and envelopes to deter and detect fraudulent reproductions. Adding multiple identifiers onto printed media is clearly disclosed by Leon, however, Yeung provides a teaching of the properties intrinsic in various watermarks as claimed by appellant (Yeung pp. 33-34).

For instance, appellant's lengthy description on page 14 of the brief of a "watermarking technique robust to photocopying" is merely recited in claim 4 as a "watermark that withstands at least certain photocopying operations." Even though the language of the claim fails to impart much specificity to the second watermark, it vaguely describes a characteristic or property of the

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<sup>2</sup> <http://www.thefreedictionary.com/imprint>.

digital watermark as taught by Yeung (Yeung p. 34, ‘copy control’ and appellant’s specification p. 8, lines 3-13, ‘do not copy’).

As per claims 5-7, Appellant argues that the cited reference fails to disclose the limitations recited by the claims (appellant’s brief pp.15-16). Claim 5 recites encoding “data useful for linking to an internet computer site (emphasis added).” Yeung teaches “embedded data can be descriptors of the content and auxiliary information such as time stamps, Global Positioning System data, and object descriptors *with links to the creator’s Web site* (p. 34, labeling and metadata insertion, emphasis added).”

Claim 6 recites encoding data “representing a device or user that produced the document.” Such data is clearly user or ownership information as taught by Yeung (p. 33, evidence of ownership).

As per claim 7, the embedded watermark communicates usage control information to a compliant device as hidden data in the source signal (p. 34, labeling and metadata insertion).

As per claims 8-13, appellant argues that the cited reference Leon fails to disclose the limitations recited (appellant’s brief pp. 16-19). Claims 8 and 12 recite the timing for printing various identifiers, which are directed to a method and fail to further limit the envelope claimed. As per claims 9 and 13, Leon discloses a variety of printers and print assemblies used (column 8, lines 24-60). The limitations of claims 10 and 11 which recite various regions for printing identifiers on the envelope are disclosed by Leon on column 8, lines 40-43.

As per claims 14-16, appellant argues that Leon fails to teach a “blank original substrate (appellant’s response pp. 19-21). A blank substrate includes by definition any variety of papers, including blank labels as disclosed by Leon for printing postage indicia.

As per claims 17-21, appellant relies on the arguments recited above as to claims 4-6, 11 and 14 respectively.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,  
  
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Conferees:

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